VPNremote for the 4600 Series IP Telephones

Release 2.0

Administrator Guide

19-600753
Issue 2
July 2006

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- Installation documents
- System administration documents
- Security documents
- Hardware-/software-based security tools
- Shared information between you and your peers
- Telecommunications security experts

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About this book

The guide provides network administrator and end-user configuration information for the Avaya VPNremote for the 4600 Series IP Telephones. This document is to be used in conjunction with the *Avaya 4600 Series IP Telephone LAN Administrator Guide*.

In the following pages, information is provided describing configuration of the Avaya VPNremote for the 4600 Series IP Telephones (VPNremote Phone) from the Administrator's perspective, including items that should be noted as part of installation. For more information regarding Administrator configuration, see Chapter 2: Configuration.

In addition, end-user configuration information is provided to assist the end user in installing and configuring the VPNremote Phone in their small office home office (SOHO) environment with minimal assistance from corporate IT or Telephony groups. For more information regarding end-user installation and configuration, see *VPNremote for 4600 Series IP Telephone User Installation and Configuration Quick Start*, document number 19-601608.

What products are covered

The following products is covered in this manual:

- Avaya VPNremote for the 4600 Series IP Telephones

  The Avaya 4600 Series IP Telephones that support the VPNremote Phone firmware includes the following devices:

  - Avaya 4610SW IP Telephone
  - Avaya 4620SW IP Telephone
  - Avaya 4621SW IP Telephone
  - Avaya 4622SW IP Telephone
  - Avaya 4625SW IP Telephone

Online Documentation

The online documentation for the Avaya VPNremote for the 4600 Series IP Telephones is located at the following URL:

Related Documentation

- Request For Comments (RFC)

  The following RFCs have been implemented: 2401, 2407, 2408, 2409, 3715, 3947, 3948, 2406, 2411.

The following documents are available on the Web site under Find Documentation and Downloads by Name:

- *Avaya VPNremote for the 4600 Series IP Telephones User Installation and Configuration Quick Start* (19-601608).

  This document provides instructions for the end user to install the VPNremote Phone in their SOHO. This document also provides information on how to enter their user name and password using the telephone keypad.

- *Avaya Administrator Guide for Communication Manager* (03-300509)

  This document provides an overall reference for planning, operating, and administering your Communication Manager solution.

- *Avaya 4600 IP Series Telephone, Release 2.4, LAN Administrator Guide* (555-233-207)

  This document provides a description of Voice over IP and describes how to administer the DHCP, TFTP, and HTTP servers. This guide also covers how to troubleshoot operational problems with the 4600 Series IP Telephones and the servers.

- Avaya 4600 Series IP Telephone, Release 2.2.1, Installation Guide (555-223-128)

  This document provides detailed information on how to install the 4600 Series IP Telephone product line and troubleshoot problems with the telephones.

- *Avaya VPNremote Client 4.1 Administrator Guide* (June 2002)

  This document provides a description of the VPNremote Client software and describes how to administer the software.

- *Avaya Security Gateway Configuration Guide for VPNos 4.6* (670-100-602)

  This document provides configuration and administration information for the Avaya SG5, SG5X, SG200, SG203, and SG208 Security Gateway that are upgraded to VPNos 4.6 and Avaya VSU devices that are upgraded to VPNos 3.X.

- Avaya Remote Feature Acitivation (RFA) User Guide (03-300149)

  The guide provides general remote feature activation (RFA) information as well as step by step processes on how to create, modify and install a license and/or an authentication file.

- Remote Feature Activation (RFA) Getting Started with Remote Feature Activation (03-300484)

  The Getting Started With Remote Feature Activation (RFA) guide has been developed to provide information about products as they pertain to RFA. It is not intended to replace high-level technical information that is available from various documentation guides.

Chapter 1: Introduction

The Avaya VPNremote for 4600 Series IP Telephones (VPNremote Phone) is an Avaya H.323 IP Telephone with an integrated virtual private network (VPN) client and an advanced web-enabled graphical display.

VPNremote Phone overview

The VPNremote Phone provides enterprise telephony services at a remote or small office home office (SOHO) location through a secure VPN connection to the user's Enterprise Communication Manager infrastructure. The VPNremote Phone uses a high-speed connection to the Internet and then to the VPN solution in the enterprise network.

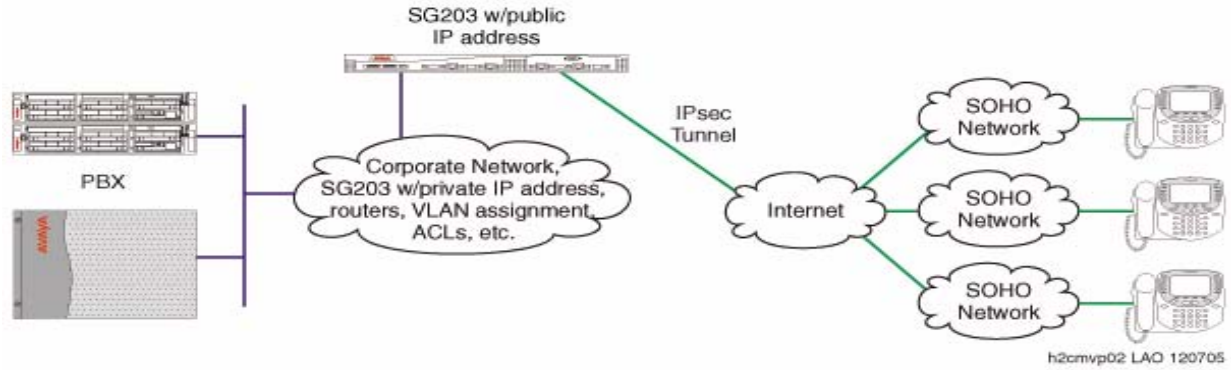
The Avaya VPNremote for 4600 Series IP Telephones provides a significant improvement on communications capabilities of SOHO users. The VPNremote Phone provides users with an extension on an enterprise PBX over a secure VPN connection in a single-box solution.

For additional information regarding the 4600 Series IP Telephones, see the *Avaya 4600 Series IP Telephone, Release 2.4, LAN Administrator Guide*.

Beginning with Release 2, the VPNremote Phone is capable of implementation in Enterprise networks with third-party devices. For more information regarding supported third-party devices, see VPNremote Phone features in Release 2.

The VPNremote Phone is targeted to work with most SOHO network configurations. Figure 1 illustrates a possible corporate network configuration with an Avaya SG203 at the headend device with three VPNremote Phones connected through secure VPN connections.

Figure 1: VPNphone in a corporate network with an Avaya SG203 as the headend device



VPNremote Phone features in Release 2

The following summarizes a number of significant feature, performance, and usability enhancements provided by VPNremote Phone, Release 2.

- **Third-party devices**– Beginning in this release, the VPNremote Phone supports the following third-party devices:

Supported Device	Minimum Software Requirement
Cisco VPN 3000 Series Concentrators	Any
Cisco PIX 500 Series Security Appliances	Any
Juniper Networks NetScreen series VPN devices	Screen OS 5.1.0 and higher
Juniper Networks Secure Services Gateway 500 Series devices	Screen OS 5.1.0 and higher
Juniper Networks Integrated Security Gateway (ISG) Series devices	Screen OS 5.1.0 and higher

- **Automatic discovery of UDP encapsulation method**– The VPNremote Phone will automatically select the correct UDP encapsulation mode during the connection process.
- **SNMP and syslog support through the VPN tunnel**– The VPNremote Phone can be SNMP polled through the VPN tunnel, and syslog messages can be securely sent through the VPN tunnel.
- **Copy TOS**– Allows TOS to be copied to ESP header packets.
- **Selectable connectivity test**– The VPNremote Phone tests connectivity to the known hosts. This test can be set to first time, always, or never.
- **Quality test (Qtest)**– The VPNremote Phone tests the connection quality.
- **Remote Feature Activation (RFA)**–The VPNremote Phone license file is generated by the Remote Feature Activation (RFA) process and is managed by the Web Licence Manager (WebLM) process. The license file must be installed for full functionality. The VPNremote Phone can function without a license file, but only for a 30-day period. When this time period expires, the VPNremote Phone is non-operational and the user must download the previous software for any functionality.

  You must contact your Avaya sales representative or business partner to get your license file.

VPNremote Phone features in Release 1

The following summarizes a number of significant feature, performance, and usability enhancements provided by VPNremote Phone, Release 1.

- **H.323 IP Telephone** – The VPNremote Phone is a fully featured Avaya H.323 IP Telephone. The H.323 IP Telephone includes the following features:
  - A large display area that allows up to 12 application-specific buttons to be presented and labeled at one time.
  - Twelve line/feature buttons
  - Four softkeys
  - Fixed buttons that provide access to powerful capabilities such as: local telephone and call server-based features, speed dialing, a Call Log, and a Wireless Markup Language (WML) browser.
- **Integrated IPSec Client** – The VPNremote Phone contains an integrated IPSec VPN Client that supports the following IPSec protocols:
  - Internet Protocol Security (IPSec)

    VPNremote Phone supports IPSec. VPNremote Phone supports IPSec when implemented under an existing implementation of an IP protocol. For additional information regarding IPSec protocol support, see the *Avaya Security Gateway Configuration Guide for VPNos 4.6*.
  - Internet Key Exchange (IKE)

    VPNremote Phone supports the standard IKE key management protocol for IPSec. For additional information regarding IKE protocol support, see the *Avaya Security Gateway Configuration Guide for VPNos 4.6.*
  - Internet Security Association and Key Management (ISAKMP)

    VPNremote Phone supports the standard IISAKMP protocol for IPSec. For additional information regarding IS AK MP protocol support, see the *Avaya Security Gateway Configuration Guide for VPNos 4.6.*

Chapter 2: Configuration

This section provides administrators with information on how to configure the Avaya VPNremote for 4600 Series IP Telephone as a VPNremote Phone.

It is recommended that administrators configure the Avaya VPNremote for 4600 Series IP Telephone (VPNremote Phone) for the end user. Administrators should load the VPNremote Phone with the latest software, configure the VPNremote Phone to connect to the Enterprise Communication Manager infrastructure, and provide the end users with information for configuration in their small office home office (SOHO) environment.

the security device through the internet, and must allow telephony traffic between the security device and Communication Manager.

Configuration preparation

To insure that the end user is able to configure VPNremote Phone in their SOHO environment and to connect to the enterprise network, administrators must preconfigure the IP telephone prior to deployment.

The initial configuration is to be completed by the administrator while the IP telephone is connected to the enterprise network, and prior to deployment to the end user. By using this method, the administrator maximizes their configuration time; and minimizes end user configuration requirements that are entered using the telephone keypad. This preconfiguration method also protects the end user's login ID and password.

Following is the recommended preconfiguration method, including the sequence and procedures:

1. Create and administer a new extension with Communication Manager, Release 2.3 or higher. For additional information see Preparing Communication Manager for the VPNremote Phone.
2. Install and test the IP telephone on the enterprise network. For additional information, see the *Avaya 4600 Series IP Telephone Installation Guide*.
3. Allow access into and out of the corporate firewall through VPN tunnels, see Preparing the Avaya Security Gateway for the VPNremote Phone.
4. Convert the 4600 Series IP Telephone, see Converting an IP Telephone to VPN IP Telephone.
5. Download the VPN firmware from the TFTP server, see Downloading the VPN firmware.
6. Configure the VPN settings to meet the configuration parameters for each VPNremote Phone site, see Configuring the VPN Settings.
7. Ship preconfigured device to the end user.

Preparing Communication Manager for the VPNremote Phone

A VPNremote Phone is configured the same as other IP telephones on the Avaya Media Server running Avaya Communication Manager. Even though the VPNremote Phone is physically located outside of the corporate network, the VPNremote Phone will behave the same as other Avaya IP telephones located on the LAN once the VPN tunnel has been established.

VPNremote Phone as a single extension on Communication Manager

The VPNremote Phone user can have a single extension on the Avaya Media Server running Avaya Communication Manager. A single extension allows the user to be connected to the Communication Manager from one location at a time - either the office or the SOHO.

If the desired configuration is to connect to Communication Manager from both the office and the SOHO, you must configure VPNremote Phone as a separate extension that has a bridged appearance of the office extension. For more information on a bridged appearance on Communication Manager, see VPNremote Phone as a bridged appearance on Communication Manager.

For additional information regarding Communication Manager configuration, see the *Administrator Guide for Avaya Communication Manager*.

VPNremote Phone as a bridged appearance on Communication Manager

The VPNremote Phone user can have a bridged appearance of the office extension on the Avaya Media Server running Avaya Communication Manager. A bridged appearance allows the user to be connected to the Communication Manager from two locations at the same time. As a call comes in, both telephones ring. If a voicemail message is received and the message indicator light is configured, the light appears on both telephones.

The bridged appearance configuration is the most common configuration for VPNremote Phone users.

For additional information regarding Communication Manager configuration, see the *Administrator Guide for Avaya Communication Manager*.

Installing the VPNremote Phone in the enterprise network

The Avaya VPNremote for 4600 Series IP Telephone is a standard Avaya 4600 Series IP Telephone with an additional VPNremote Client capability. The installation of the VPNremote Phone in the enterprise network is the same as the installation of any Avaya 4600 Series IP Telephones.

For detailed instructions on how to install the VPNremote Phone into the enterprise network, see the *Avaya 4600 Series IP Telephone Installation Guide*.

Preparing the Avaya Security Gateway for the VPNremote Phone

VPNremote Phone users who login to the VPN through the Avaya security gateway must have their user authentication configured on that security gateway. The user authentication configuration allows VPN traffic to flow through the corporate firewalls to the security gateway. VPN traffic is remote traffic that has traversed the VPN tunnel.

As a minimum, you must configure a user name and the password for each remote user. User names can be up to 128 characters long and can contain any character except a comma (,). Note that once you add a user name, you cannot change the name.

For additional information regarding configuring the security gateway for the VPNremote Phone, see the *Avaya Security Gateway Configuration Guide for VPNos 4.6*.

Configuring VPNremote Phone system parameters on the devices

Table 1 lists the configurable system parameters for the supported devices. For more information regarding system parameters, see Appendix C: System Parameters Customization.

Table 1: Supported devices system parameters

Supported Device	System Parameter Values
Avaya Security Gateway	Set the following values: **NVVPNCFGPROF(1)** **NVCERTUNK(2)** **NVIKECONFIGMODE(2)**
Cisco VPN 3000 Series Concentrators	Set the following values: **NVVPNCFGPROF(3)** **NVVPNSVENDOR(2)** **NVVPNAUTHTYPE(4)** **NVIKEXCHGMODE(1)** **NVIKEIDTYPE(11)** **NVIKECONFIGMODE(1)**
Cisco PIX 500 Series Security Appliances	Set the following values: **NVVPNCFGPROF(3)** **NVVPNSVENDOR(2)** **NVVPNAUTHTYPE(4)** **NVIKEXCHGMODE(1)** **NVIKEIDTYPE(11)** **NVIKECONFIGMODE(1)**

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Table 1: Supported devices system parameters (continued)

Supported Device	System Parameter Values
Juniper Networks NetScreen series VPN devices	Set the following values: **NVVPNCFGPROF(5)** **NVVPNSVENDOR(1)** **NVVPNAUTHTYPE(4)** **NVIKEIDTYPE(3)** **NVIKEXCHGMODE(1)** **NVIKECONFIGMODE(1)**
Juniper Networks Secure Services Gateway 500 Series devices	Set the following values: **NVVPNCFGPROF(5)** **NVVPNSVENDOR(1)** **NVVPNAUTHTYPE(4)** **NVIKEIDTYPE(3)** **NVIKEXCHGMODE(1)** **NVIKECONFIGMODE(1)**
Juniper Networks Integrated Security Gateway (ISG) Series devices	Set the following values: **NVVPNCFGPROF(5)** **NVVPNSVENDOR(1)** **NVVPNAUTHTYPE(4)** **NVIKEIDTYPE(3)** **NVIKEXCHGMODE(1)** **NVIKECONFIGMODE(1)**
Any Security Device (Generic) with Preshared Key (PSK)	Set the following values: **NVVPNCFGPROF(6)** **NVVPNSVENDOR(4)** **NVVPNAUTHTYPE(3)** **NVIKECONFIGMODE(2)** **NVIKEXCHGMODE(1)** **NVIKEIDTYPE(3)**
Any Security Device (Generic) with IKE Extended Authentication (Xauth)	Set the following values: **NVVPNCFGPROF(7)** **NVVPNSVENDOR(4)** **NVVPNAUTHTYPE(4)** **NVIKEIDTYPE(3)** **NVIKEXCHGMODE(1)** **NVIKECONFIGMODE(1)**
	2 of 2

Converting an IP Telephone to VPN IP Telephone

Use the following procedure and the telephone key pad to convert a non-VPNremote IP telephone into a VPNremote telephone:

1. Allow the telephone to initialize and register with Communication Manager.
2. After the phone is registered, set the GROUP for each phone you want to upgrade to a VPN IP telephone to 876. To initiate the GROUP command from the telephone key pad, press:

   Mute 4-7-6-8-7 #
3. After the GROUP command is initiated, enter **8-7-6 #** (V-P-N #) for the New value. Use Page LEFT key to erase any errors.
4. Press **#** to save the new value.

   Save new value?

   *** = no #=yes**

Downloading the VPN firmware

Prior to configuring the VPNremote Phone, you must first install the VPNremote Phone firmware on an existing internal TFTP server. Install the VPNremote Phone firmware files on the same TFTP server that the existing IP telephones 2.3 firmware or higher.

Note:

The TFTP server should not be accessible from outside the enterprise network without a VPN connection.

To download the firmware:

1. Verify that the file server is configured to upgrade the telephone firmware.
2. Copy the VPNremote Phone software files to the TFTP server. The VPNremote Phone firmware files must be on the same TFTP server as the existing IP telephones firmware.
3. Create a new 46xxupgrade.scr file.
4. Add the following lines to the beginning of the new 46XXupgrade.scr file:

   ```
   IF $GROUP SEQ 876 goto DEFVPN
   GOTO NOVPN
   # DEFVPN
   GET 46xxvpn.scr
   GOTO END
   # NOVPN
   ```

5. Upon completion of the download, the telephone will restart. Upon restart, the telephone will attempt to establish a VPN connection. To complete the configuration, you must configure the user VPN settings.

Configuring the VPN Settings

Once the firmware has successfully downloaded to the IP Telephone, you are now ready to configure the VPN settings. The 46XXvpnsettings.txt file is populated with the settings that are used by the VPNremote Phone to create the VPN tunnels. It is recommended that the administrator edit the VPN settings files to set the configuration parameters for VPNremote Phone users.

Note:

For a detailed list of VPN settings in the 46XXvpnsetting.txt file, see Appendix C: System Parameters Customization.

At startup, the phone will attempt to establish a VPN connection using the configured VPN parameters. The user is given the option to change the VPN parameters. To change the VPN parameters, the user can press the Edit button indicated on the VPN startup screen. The Edit button gives the user a screen that can be used to change the VPN parameters.

If the phone is up and registered with Communication Manager, the user may also edit the VPN parameters by entering the VPNMOD command as detailed below.

Use the following procedure and the telephone key pad to configure or edit the VPN Settings:

1. To initiate the VPNMOD command from the telephone key pad, press:

   Mute V-P-N-M-O-D # or **Mute 8-7-6-6-6-3 #**

   VPN Start Mode: BOOT

   *** = Modify # = OK**

2. Press ***** to modify your VPN settings.
3. Select the VPN option to change by using the gray buttons on the left of the display. Press the **Server** button, or the first gray button, to change the VPN server IP address.
4. Enter the IP address of the SOHO network. Press the **Done** button at the lower left corner of the display to return to the configuration options. The IP address of the SOHO network must be provided by the end user.
5. Select the VPN option to change by using the gray buttons on the left of the display. Press the **User Name** button, or second gray button, to change the VPN user name.

   The user name is the same name used to login to the enterprise network using remote client software.

6. Enter the user name using the telephone key pad. Press the alpha-numeric keys until the desired letter appears. Use the Case button, or fifth gray button, to switch between upper-case letters and lower-case letters. Use the left and right arrow keys at the bottom of the display to move left or right in the user name. Press the **Done** button at the lower left corner of the display to return to the configuration options.
7. Select the VPN option to change by using the gray buttons on the left of the display. Press the **Password** button, or third gray button, to change the VPN password.

   The password is the same password used to login to the enterprise network using VPNremote Client.
8. Enter the password using the telephone key pad. Press the alpha-numeric keys until the desired letter appears. Use the Case button, or fifth gray button, to switch between upper-case letters and lower-case letters. Use the left and right arrow keys at the bottom of the display to move left or right in the user name. Press the **Done** button at the lower left corner of the display to return to the configuration options.
9. Select the VPN option to change by using the gray buttons on the left of the display. Press the **Authentication mode** button, or forth gray button, to change the authentication mode.
10. Select the VPN option to change by using the gray buttons on the left of the display. Press the **Password Type** button, or fifth gray button, to change the password type.
11. Press the fifth button on the right side of the display to scroll through the password type options.
12. Select the VPN option to change by using the gray buttons on the left of the display. Press the **VPN Start Mode** button, or sixth gray button, to change the VPN start mode.
13. Press the sixth button on the right side of the display to scroll through the VPN start mode options. Select **Boot** and press #.
14. Press the right arrow key to move to the next display.
15. Select the VPN option to change by using the gray buttons on the left of the display. Press the **Encapsulation** button, or the first gray button, to change the encapsulation option.
16. Press the first button on the right side of the display to scroll through the encapsulation options. Select **Disable** and press #.
17. The Syslog Server option is not configured.
18. Press **Done** to complete the configuration.

Deploying the VPNremote Phone

Deploy the VPNremote Phone to the end user. When the end user installs the VPNremote Phone in their home network, the telephone will initialize and display a user ID and password error. The end user must enter their user name and password that they use to login to their enterprise network using remote client software.

Appendix A: Avaya VPNremote for 4600 Series IP Telephones Installation Checklist

The checklist on the following page is provided for your convenience for supplying your users with essential installation information.

Table 2: VPNremote Phone Installation Checklist

Item	Value	Description
VPNremote Phone IP Address	The default value is 0.0.0.0 when using DHCP.	In the SOHO network uses DHCP, set this value to 0.0.0.0 # (default value). Otherwise, enter the IP address used by the VPNremote Phone in the SOHO network.
Call Server Port Address	The default value is 1719 unless otherwise stated by your administrator.	This IP address is the IP address of the CLAN inside the enterprise.
Gateway IP Address	If DHCP is being used, press # to accept the default values. Otherwise end user will confirm address.	This IP address is the IP address of the SOHO router.
Network Mask	If DHCP is being used, press # to accept the default values. Otherwise end user will confirm address.	This IP address is the network mask for SOHO network.
TFTP File Server		This IP address is the TFTP file server inside the enterprise that contains the configuration and update files.
Extension of your VPNremote Phone		Depending on the telephony configuration, this extension may or may not be the same extension as your office telephone. Check with you telephony administrator to confirm your extension.
		1 of 2

Table 2: VPNremote Phone Installation Checklist (continued)

Item	Value	Description
VPNremote Phone password		Depending on the telephony configuration, this password may or may not be the same password as your office telephone. Check with you telephony administrator to confirm your password.
VPN server		This is the public IP address of the security gateway.
VPN user name		End user will enter.
VPN password		End user will enter.
		2 of 2

Appendix B: Troubleshooting

This chapter describes problems that might occur during installation and configuration of the Avaya VPNremote for 4600 Series IP Telephones and possible ways of resolving these problems.

This chapter contains the following sections:

- Descriptions of error conditions and methods for resolving them.
- Error and status messages, and methods for resolving them.
- Syslog

Error Conditions

The following information describes some of the most common issues that may be seen and how to trouble shoot them.

Authentication Failures

- Check User ID and password configured on phone
- Check Event log on Security gateway
- Check Configured User ID and password on Gateway
- If external authentication is used such as Radius, check connectivity between SG and Radius and Radius User configuration

TCP/IP Connection Failure

- Confirm VPN server address is correct.
- Confirm the Gateway is available
- Confirm VPNPhone has internet connectivity
- Confirm TCP port 1443 is not blocked by any external device between phone and the security gateway.

  The SOHO router may be configured to allow only outgoing TCP connection on port 80 for HTTP and port 443 for HTTPS. There may also be a firewall in front of security gateway that may not be configured to allow an incoming TCP connection on port 1443.

SSL Connection Failure

- Confirm security device is accepting SSL connections

  This requires access to the device's Web interface or SSH access.

General Phone Errors and Behaviors

- Contact DHCP/TFTP administrator, L2Q parms in option 43/176 or xxx.SCR script file.

  The VPNremote Phone is experiencing a looping condition. This condition is caused by the gateway IP address being set to 0.0.0.0. Change the device IP address to the static security device IP address or DHCP.

- Loading ……. is not seen during startup and mute light flashes.

  Check the bootcode version. Older version such as 1.9x is not compatible with the latest software version.

IKE and IPSec Negotiation Failures

- Enable IKE Logging on the security device
- Perform TCP dumps from the security device console/SSH connection.

Phone fails to register

- Confirm the VPN tunnel was built
  1. Check if the security associations (SA) are built on security device under Monitor/VPN from the Web interface.
  2. When the VPN Phone starts, does it access the TFTP server through the VPN tunnel. If it does then the tunnel is up to that network. Check to see if the call server is on the same subnet as the TFTP server. If configured IP group in SG covers both address, then access should be available.
- Perform a tTCP dump on interfaces of the central security device. Check to see if the esp packets are arriving from the phone during the time it should be registering.
  1. If not Check the L3 Audio and Signaling values. If set to 46/34, change to zero and restart phone and check tcpdump.
  2. If TOS bits are being copied to esp packet on the security device side, Communication Manager configuration may need to be changed. The above may be require when ISPs block TOS marked packets.

Error and Status Messages

The 4600 Series IP Telephones issue messages in English only. The IP telephones also display messages from the switch, which can issue messages in the local language outside the United States.

Note:

The following error messages are for the VPNremote Phone only. For additional information on the 4600 Series IP Telephone error messages, see the 4600 Series IP Telephone, Release 2.2.1, Installation Guide.

Most of the messages in following tables display only for about 30 seconds, and then the telephone resets.

Table 3 describes the list of all error messages that pertain to the VPN tunnel setup failures that the VPNremote Phone might display.

Table 3: VPN Tunnel Setup Failures

Error Message	Avaya Profile	Third-Party Profile	Possible Cause	Possible Solution
TCP Connection timed out.	Yes	N/A	Security gateway not accessible or unresponsive to TCP connection.	Verify end-user login ID and password, and that the network is up.
SSL Handshake failed	Yes	N/A	SSL 1443 connection failed.	Verify end-user login ID and password.
Invalid server certificate	Yes	N/A	Security device certificate issue.	Verify that the security device certificate is valid.
Unknown certificate issuer	Yes	N/A	SSL handshake during VPN setup failed because the server certificate provided by the gateway is not signed by the appropriate.	Verify that the VPNremote Phone is connecting to an Avaya device.

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Table 3: VPN Tunnel Setup Failures (continued)

Error Message	Avaya Profile	Third-Party Profile	Possible Cause	Possible Solution
Server authentication mechanism failing	Yes	N/A	An externally configured authentication source (Radius Server) and Security Gateway cannot communicate.	Verify communication with external authentication source.
IKE Phase 1 no response	Yes	Yes	Security device is busy. For all Profiles: Security device cannot be reached because the firewall is blocking incoming UDP packets on port 500. This is on the security device side or home router is blocking outgoing UDP packets on port 500. For third-party profile: Group Name (IKE ID) is incorrect. IKE ID type is incorrect. Phase 1 proposal mismatch.	For all Profiles: Verify that the firewall accepts UDP packets on port 500. Verify that the security device allows outgoing UDP packets on port 500. For third-party profiles: Verify group name. Verify IKE IK type. Verify phase 1 proposal.

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Table 3: VPN Tunnel Setup Failures (continued)

Error Message	Avaya Profile	Third-Party Profile	Possible Cause	Possible Solution
IKE Phase 2 no response.	No	Yes	Security device is busy. IKE phase 2 proposal is mismatched. Vendor-specific features are enabled. List of protected IP groups do not match.	Verify IKE proposal is correct, disable vendor-specific features, and/or verify protected IP groups.
Failed to reach known host.	Yes	N/A	VPNphone was unable to reach known host such as the TFTP server or call server address.	Verify that the TFTP server address is correct. Verify that the call server address is correct.
IKE Preshared key (PSK) mismatch.	No	Yes	PKS (Group password) is incorrect.	Verify that the IKE PSK is correct.

Table 3: VPN Tunnel Setup Failures (continued)

Error Message	Avaya Profile	Third-Party Profile	Possible Cause	Possible Solution
DNS needed for resolving security device name.	Yes	Yes	The system could not resolve the security device fully qualified domain name (FQDN). DNS query sent to resolve security device FQDN failed or has timed out.	Check the DNS server connection. Verify that the FQDN is correct.
Security device name resolution failed.	Yes	Yes	The system could not resolve the security device fully qualified domain name (FQDN). DNS query sent to resolve security device FQDN failed or has timed out.	Check the DNS server connection. Verify that the FQDN is correct.

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Table 4 describes the list of all error messages that pertain to the VPN tunnel setup failures that the VPNremote Phone might display.

Table 4: Authentication Errors

Error Message	Possible Cause
Authentication failure, User Blocked	User is blocked for “x” minutes from “x” number of incorrect logins.
Invalid password OR user name	Incorrect user name or password entered.
Phone brand rejected by SG	Incorrect phone brand configured on gateway.
VPN Topology not supported	Multiple central site devices configured which is not a supported configuration.
Empty Gate Keeper	No call server addresses configured.

Note:

All error messages will provide the option to display more information or edit the configuration.

Syslog

Adding the IP address of the SYSLOG server will enable Sysloging of VPN module. This SYSLOG server is meant to catch log messages while tunnel setup is in progress hence the syslog server must be accessible without the tunnel.

Appendix C: System Parameters Customization

For additional definitions and information on how to change IP telephone parameters, see the *Avaya 4600 Series IP Telephone, Release 2.3, LAN Administrator Guide*, *Server Administration* chapter, *Administering Options for the 4600 Series IP Telephones*.

The parameters in Table 5 are configurable to desired values in the Script File. For additional information on the Script File, see the *Avaya 4600 Series IP Telephone, Release 2.4, LAN Administrator Guide*, *Server Administration* chapter, *Contents of the Upgrade Script* section. We recommend that you administer options on the 4600 Series IP Telephones using script files.

Table 5: VPNremote for 4600 Series IP Telephones Customizable System Parameters

Parameter Name	Default Value	Description and Value Range	Example
NVVPNMODE	2	This parameter controls when VPN Client is started. Valid value is one ASCII numeric digit, 0 to 2. Values are: 0 = VPN is disabled. 1 = VPN will start after TCP/IP initialization and before downloading the script file. 2 = VPN will start after downloading and processing the script file.	To set the VPN mode to start the VPN Client at initialization (boot), use the following command: **`SET NVVPNMODE 1`**
NVVPNSVENDOR	0	This parameter controls the vendor of the security device. Valid value is one ASCII numeric digit, 0 to 4. Values are: 0 AVAYA 1 NETSCREEN 2 CISCO 3 CHECKPOINT 4 ANY This system initialization parameter cannot be modified by a local procedure.	To set the VPN device vendor to Any, use the following command: **`SET NVVPNSVENDOR 4`**

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Table 5: VPNremote for 4600 Series IP Telephones Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
NVVPNCFGPROF	NONE	This parameter controls the VPN configuration profile for the device vendor and device type. Valid value is one ASCII numeric digit, 1, 3, 5, 6 and NONE. Values are: 1 = Avaya Security Gateway 3 = Cisco Xauth with PSK 5 = Juniper/Netscreen Xauth with PSK 6 = Generic PSK Description: • Set this parameter to 1 if Security Gateway vendor is Avaya. • Set this parameter to 3 if the device vendor is Cisco and Xauth is used for authenticating phone user. • Set this parameter to 5 if device vendor is Juniper, Xauth is used for authenticating phone user. • Set this parameter to 6 if the device vendor does not support Xauth.	To set the device VPN configuration profile to the Avaya security gateway, use the following command: **`SET NVVPNCFGPROF 1`** The following parameters must be set to specified values. • If NVVPNCFGPROF=1 then NVIKECONFIGMODE=2 • If NVVPNCFGPROF=3 then NVIKECONFIGMODE=1 NVIKEIDTYPE =11 NVIKEXCHGMODE=1 • If NVVPNCFGPROF=5 then NVIKECONFIGMODE=1 NVIKEIDTYPE=3 NVIKEXCHGMODE=1 • NVVPNCFGPROF=6 then NVIKECONFIGMODE=2 NVIKEIDTYPE=3 NVIKEXCHGMODE=1

Table 5: VPNremote for 4600 Series IP Telephones Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
NVVPNAUTTYPE	2	This parameter is valid when NVVPNCFGPROF is set to 1 (Avaya security gateway). If the Avaya security gateway software version is 4.0 or higher, the default value does not need to be changed. Controls user authentication mode. Valid value is one ASCII numeric digit, 1 and 2. Values are: 1 = CHAP 2 = PAP The method chosen is dependent on the type of authentication used by the security device.	To set the device authentication type to CHAP, use the following command: **SET NVVPNAUTHTYPE 1**
NVSGIP	“” (Null)	This parameter controls the primary IP address or the fully qualified domain name of the security device. Valid values are zero or more IP Addresses in dotted-decimal or fully qualified domain name format, separated by commas without any intervening spaces (0 to 255 ASCII characters, including commas). Null (“”) is a valid value, but the value may not contain spaces. This value cannot be more than 30 characters.	To set the device primary IP address to 10.1.1.1, use the following command: **SET NVSGIP 10.1.1.1** To set the device fully qualified domain name to primarysg.mycompany.com, use the following command” **SET NVSGIP primarysg.mycompany.com**

Table 5: VPNremote for 4600 Series IP Telephones Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
NVSECSGIP	“” (Null)	This is the secondary IP address or the secondary fully qualified domain name of the Avaya Security Gateway (SG). Valid values are zero or more IP Addresses in dotted-decimal or fully qualified domain name format, separated by commas without any intervening spaces (0 to 255 ASCII characters, including commas). Null (“”) is a valid value, but the value may not contain spaces. The VPN server IP address cannot be more than 24 characters.	

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Table 5: VPNremote for 4600 Series IP Telephones Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
NVBACKUPSGIP	“” (Null)	This parameter controls the back up IP address or the back up fully qualified domain name of the security device. If the VPN Client could not connect to the primary security device, VPN Client attempts to connect to the security devices in this list. A maximum of 4 back-up security gateways can be configured. Enter the value in dotted decimal format or DNS name format. Valid values are zero or more IP Addresses in dotted-decimal or DNS name format, separated by commas without any intervening spaces (0 to 255 ASCII characters, including commas). Null (“”) is a valid value, but the value may not contain spaces. This value cannot be more than 30 characters.	To set the device backup IP address to 10.1.1.2, bk1sg.mycompany.com, and bk2.mycompany.com as backup security devices, use the following command: **`SET NVBACKUPSGIP 10.1.1.2,bk1sg.mycompay.com,bk2.mycompany.com`**

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Table 5: VPNremote for 4600 Series IP Telephones Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
NVVPNUSER	“” (Null)	This parameter controls the user name to be used during authentication and VPN tunnel setup. Each VPNremote Phone should be configured with a unique user name. A unique user name can be configured during the initial VPN setup. The VPNremote Phone is capable of using the phone's mac address or serial number as user name. This capability eliminates the need to enter the user name by the phone user using the phone keypad. In these cases you must add each device mac address or serial number to your authentication database. This value range is up to 30 ASCII characters.	To set the user name as the device mac address, use the following command: **SET NVVPNUSER %MACADDR%** To set the user name as the device serial number, use the following command: **SET NVVPNUSER %SERIALNUM%**

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Table 5: VPNremote for 4600 Series IP Telephones Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
NVVPNPSWDTYPE	1	This parameter controls the type of VPN passwords. Valid value is one ASCII numeric digit, 1 to 4. Values are: 1 = The password is saved in non-volatile memory. 2 = The password is erased when you turn off power to the telephone. 3 = The password is all numeric and is for one-time-use only. 4 = The password is alpha-numeric and is for one-time-use only. You must set this parameter to 3 or 4 if using one-time passwords such as SecureID from RSA. **NOTE:** Setting the password type to 3 will not let the user select “Alpahbets” while entering password. This might look like an obvious choice when using RSA secure ID tokens. However, under some conditions the user may need to respond back by entering **`y`** or **`n`** in the password field.	To set the password type to 2, use the following command: **`SET NVVPNPSWDTYPE 2`**

Table 5: VPNremote for 4600 Series IP Telephones Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
NVVPNFILESRVR	Null ("")	This parameter contains the URL of the file server. A file server URL consist of following components: 1=Download Method (HTTP,HTTPS,TFTP) 2=FQDN or actual IP address of the file server 3=Service port (80 for HTTP and 443 for HTTPS) 4=Path (NONE) All the components specfied above, except for the FQDN/IP Address, have a default value. If download method is omitted from the URL, the VPNremote Phone attempts to download the script file using all the methods.	To set the download method to HTTP, use the following command: **SET NVVPNFILESERVER http://10.1.1.1:8080/phone**

Table 5: VPNremote for 4600 Series IP Telephones Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
NVVPNCOPYTOS	2	This parameter contains whether TOS bits should be copied from the inner header to the outer header, or not copied at all. Values are: 1=YES 2= NO Description: If the value is 1, TOS bits are copied. By default, TOS bits are not copied from the inner header to the outer header. Some Internet Service Provider do not route the IP packets properly if TOS bits are set to anything other than 0.	To set the copy TOS value to 1, use the following command: **`SET NVVPNCOPYTOS 1`** Avaya recommends that this value is not changed when the telephone phone is downloading the script over the VPN tunnel. This recommendation avoids overriding end-user settings that can occur due to ISP specific issues. For example you can set this value to 1 while provisioning the telephone with the VPNremote Phone software so that the telephone can take advantage of the QOS service provided by the home router. However, if the telephone's ISP does not properly handle the packets with non-zero TOS bits in IP header, the telephone user needs to change this value back to 2. Due to specific ISP limitations, Avaya recommends that the user's choice are not overwritten each time the script file is downloaded. To set the copy TOS value to 1 when the script file is not downloaded over the VPN, use the following command: **`IF $VPNACTIVE SEQ 1 goto skipcopytos`** **`SET NVVPNCOPYTOS 1 # skipcopytos`**

Table 5: VPNremote for 4600 Series IP Telephones Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
NVWEBLMURL	http://XX.XX.XX.XX:8080/WebLM/LicenseServer	This parameter contains the Web LM licensing server URL information. Multiple WebLM licensing server URLs are separated by commas. The length of the individual URL cannot be more than 128 characters. The combined length of all the URLs cannot be more than 252 characters.	To set the Web LM value, use the following command: **SET NVWEBLMURL http://XX.XX.XX.XX:8080/WebLM/LicenseServer** Where XX.XX.XX.XX is the IP address (or FQDN) of the WebLM server.

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Table 5: VPNremote for 4600 Series IP Telephones Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example

NVVPNENCAPS	0	This parameter contains the method of UDP encapsulation.
		Values are:
		0=4500-4500
		1=Disable
		2=2070-500
		4= RFC (3947 and 3948)
		
		Description:
		The type of UDP encapsulation method to use when there is a NAT device between the VPNremote Phone and the security device.
		• Set this parameter to 0 for IKE negotiation to start with source port 2070 and destination port 500. Negotiation switches to port source port 4500 and destination port 4500 if peer supports port floating (Ref RFC 3947,3948). Set this parameter to 1 to disable IKE NAT traversal.
		• Set this parameter to 2to disable port floating during IKE NAT traversal.
		• Set this parameter to 4 for IKE negotiation to start with source port 500 and destination port 500. Negotiation switches to port source port 4500 and destination port 4500 if peer supports port floating (Ref RFC 3947 and 3948).
		Finally IPsec traffic is sent inside UDP packets from and to port 4500 if supported by peer or port 2070<->500 if port floating is not supported, and UDP encapsulation is supported as published in the initial draft versions of RFC 3947 and 3948.
			To set the UDP encapsulation value to 1 when the script file is not downloaded through the VPN tunnel, use the following command:
			`IF $VPNACTIVE SEQ 1 goto skipencaps`
			`SET NVVPNENCAPS 1 # skipencaps`
			.

Table 5: VPNremote for 4600 Series IP Telephones Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
NVVPNCONCHECK	1	This parameter decides if the connectivity check should be performed after establishing the VPN tunnel, and how it should behave in the event of connectivity check failure. Values are: 1=First time 2= Never 3= Always Description: The tunnel connectivity check is performed after the VPN tunnel is established. If connectivity check fails, the tunnel is established with a different encapsulation method until all the available encapsulation method are attempted or connectivity check is successful.	To set the connectivity check value to 2, use the following command: **SET NVVPNCONCHECK 2**

Table 5: VPNremote for 4600 Series IP Telephones Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
VPNMONFRQ	0	This value contains the frequency of VPN monitoring syslog message in minutes. If a syslog server IP address is specified (LOGSRVR) and VPNMONFRQ contains a valid value, VPNremote Phone sends a syslog message every VPNMONFRQ minutes. This message contains following data points: • Duration for which phone has been up in minutes. • Number of times phone lost contact with the Security Gateway but successfully recovered without rebooting. • IP Address of the Security Gateway to which the phone is connected. • Cumulative IPsec stats (Packets sent, received, errors encountered)	To set the VPN monitoring frequency, use the following command: **SET VPNMONFRQ 20**
DROPCLEAR	1	Controls the policy that defines the handling on incoming and outgoing clear packets. Valid value is one ASCII numeric digit, 0 and 1. Values are: 0 =All clear traffic is accepted. 1 = All clear traffic will be dropped except for traffic to and from the security gateway and the DHCP server.	

Table 5: VPNremote for 4600 Series IP Telephones Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
ALWCLRNOTIFY	0	This parameter contains the policy that defines ISAKMP NOTIFICATION messages. These message can be in the clear or encrypted. If this value is 0, any notification sent in the clear should be ignored by ISAKNMP.	
FAILOVERDELAYONHOOK	300	This parameter contains the policy that defines the duration in seconds the VPNremote Phone attempts to re-establish a tunnel with the currently connected security device. This value, in seconds, must be set before VPNremote Phone attempts to connect to a different security device if the VPNremote Phone is in **ON** hook.	
FAILOVERDELAYOFFHOOK		This parameter contains the policy that defines the duration in seconds the VPNremote Phone attempts to re-establish a tunnel with the currently connected security device. This value, in seconds, must be set before VPNremote Phone attempts to connect to a different security device if the VPNremote Phone is in **OFF** hook.	
ACTIVATEVPN	0	This value is ignored if NVVPNMode is set to 1 or 0. If the value is set to 1, the VPN tunnel setup procedure is invoked prior to starting the system specific procedures.	
ALWSTOPVPN	0	This value contains the policy that defines if user is allowed to stop VPN while connected to the call server. If this value is 1, the user is allowed to stop the VPN connection.	

Table 5: VPNremote for 4600 Series IP Telephones Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
ALWSTOPVPN	1	This parameter contains the policy that defines if the user is allowed to stop VPN while connected to the call server. Values are: 1=enable 2=disable	
EXTVPNS	Null ("")	This parameter contains the list of security device IP addresses. These addresses are used to connect to the Enterprise network from an external source. Enter the value in dotted decimal format or DNS name format. Valid values are zero or more IP addresses separated by commas without any intervening spaces (0 to 255 ASCII characters, including commas), or null (""). The length of individual VPN server IP address cannot be exceed 16 characters. If the IP address or DNS name of the VPN server to which client is currently connected is included in this list then value of ALWSTOPVPN will be treated as 0 even if it was SET as 1 through SET command in the script file.	
VPNACTIVE		The VPNACTIVE value is 1 when the VPN tunnel is active and 0 when the VPN tunnel is not active.	This value is read-only.

The parameters in Table 6 are configurable in the Script File when the parameter NVVPNCFGPROF is set to 1. For additional information on the Script File, see the *Avaya 4600 Series IP Telephone, Release 2.4, LAN Administrator Guide*, *Server Administration* chapter, *Contents of the Upgrade Script* section. We recommend that you administer options on the 4600 Series IP Telephones using script files.

Table 6: VPNremote for 4600 Series IP Telephones Specific Customizable System Parameters

Parameter Name	Default Value	Description and Value Range	Example
NVIKEPSK	2	This value controls the preshared key (PSK). The preshared key is used during phase 1 negotiation. The length of the preshared key string cannot exceed 30 characters. Avaya recommends that the user enter the preshared key using the telephone keypad. However, if you do not want to share PSK with the end user because it is common for multiple users, you can use this parameter to push the PSK (Group password) to each telephone. If you are pushing the PSK to the telephone, make sure that the file server is on an isolated network and is used only for provision in VPN parameters to the telephones.	To set the preshared key as abc1234, use the following command: `SET NVIKEPSK abc1234`

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Table 6: VPNremote for 4600 Series IP Telephones Specific Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
NVIKEID	VPNPHONE	This parameter controls the IKE identifier. The IKE identifier is used during phase 1 negotiation. Length of the string cannot exceed 30 characters. The XAuth documentation refer to this parameter as Group Name because IKE Id is shared among a group of user and individual user authentication is done using XAuth after establishing IKE phase 1 security association. If this parameter is left uninitialized, the VPNremote Phone uses "VPNPHONE" as the IKE Identifier.	To set the IKE identifier as phones@sales.com, use the following command: **`SET NVIKEID phones@sales.com`**

Table 6: VPNremote for 4600 Series IP Telephones Specific Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
NVIPSECSUBNET	2	This parameter contains the IP subnet and masks that are protected by the security device. Multiple subnet and masks are separated by commas. The length of the individual URL cannot be more than 128 characters. The combined length of all the subnet and masks strings cannot be more than 5. Description: By default phone assumes that all the network resources are behind the security gateway hence it negotiates for a security association between the IP address (or Virtual IP if delivered through the IKE Config mode) and 0.0.0.0 with the security device. If your security device is configured to allow building security association for selected subnets, you can specify them here.	To set the IP subnet and mask that are protected by the security device, use the following command: **SET NVIPSECSUBNET 10.1.12.0/24,172.16.0.0/16** OR **SET NVIPSECSUBNET 10.1.12.0/ 255.255.255.0,172.16.0.0 /255.255.0.0**
NVVPNSYSLOG	0.0.0.0	This parameter allows the VPNremote Phone to send operational information to a syslog server that is specified by the respective IP address.	

Table 6: VPNremote for 4600 Series IP Telephones Specific Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
NVIKEDHGRP	2	This parameter contains the value of Diffe-Hellman (DH) group. The DH group is used during phase 1 negotiation. Values are: 1= DH group 1 2=DH group 2 5=DH group 5 14=DH group 14 15=DH group 15	To set the DH group to group 1, use the following command: **SET NVIKEDHGRP 1**
NVPFSDHGRP	0	This parameter contains the value of Diffe-Hellman (DH) group. The DH group is used during phase 2 negotiation for establishing IPsec security associations also known as perfect forward secrecy (PFS). Values are: 0=No PFS 1=DH group 1 2=DH group 2 5=DH group 5	To set the DH group to group 2 for phase PFS, use the following command" **SET NVPFSDHGRP**
NVIKEIDTYPE	The default value depends on the value of NVVPNCFGPROF.	This parameter contains the IKE Identifier type for the IKE ID specified in the NVIKEID parameter. Values are: 1=IP address 2= FQDN 3=User FQDN (E-Mail) 9=Directory name 11=KEY-ID (Opaque)	To set the IKE identifier type to FQDN, use the following command: **SET NVIKEIDTYPE 2**

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Table 6: VPNremote for 4600 Series IP Telephones Specific Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
NVIKEP1ENCALG	0	This parameter contains the encryption algorithms to propose for IKE phase 1 security association. Values are: 0=ANY 1=AES 128 2=3DES 3=DES 4 =AES 192 5=AES 256 The security device selects the algorithm mandated by the administrator. Priority order of algorithms proposed by the VPNremote Phone is AES-128,3DES,DES,AES-192.AES-256. In very rare circumstances, the security device may not be able to handle multiple proposals. In this cases, only try overriding the default behavior.	To set the encryption algorithm to AES 128, use the following command: **`SET NVIKEP1ENCALG 1`**

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Table 6: VPNremote for 4600 Series IP Telephones Specific Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
NVIKEP2ENCALG	0	This parameter contains the encryption algorithms to propose for IKE phase 2 security association. Values are: 0=ANY 1=AES 128 2=3DES 3=DES 4 =AES 192 5=AES 256 The security device selects the algorithm mandated by the administrator. Priority order of algorithms proposed by the VPNremote Phone is AES-128,3DES,DES,AES-192.AES-256. In very rare circumstances, the security device may not be able to handle multiple proposals. In this cases, only try overriding the default behavior.	To set the encryption algorithm to AES 128, use the following command: **SET NVIKEP2ENCALG 1**
NVIKECONFIGMODE	1	This parameter enables ISAKMP configuration mode. Values are: 1=enable 2=disable.	
NVIKEXCHGMODE	1	This parameter enables the IKE Phase 1 Security Association (SA) mode. Values are: 1=Aggressive mode. 2=Identity Protection mode.	

Table 6: VPNremote for 4600 Series IP Telephones Specific Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example
NVIKEP1AUTHALG	0	This parameter contains the authentication algorithms to propose for IKE phase 1 security association. Values are: 0=ANY 1=MD5 2=SHA1 The security device selects the algorithm mandated by the administrator. Priority order of algorithms proposed by the VPNremote Phone is MD5,SHA1. In very rare circumstances, the security device may not be able to handle multiple proposals. In this cases, only try overriding the default behavior.	To set the authentication algorithm to SHA 1, use the following command: **SET NVIKEP1AUTHALG 1**
NVIKEP2AUTHALG	0	This parameter contains the authentication algorithms) to propose for IKE phase 2 security association. Values are: 0=ANY 1=MD5 2=SHA1 The security device selects the algorithm mandated by the administrator. Priority order of algorithms proposed by the VPNremote Phone is MD5,SHA1. In very rare circumstances, the security device may not be able to handle multiple proposals. In this cases, only try overriding the default behavior.	To set the authentication algorithm to SHA 1, use the following command: **SET NVIKEP2AUTHALG 1**

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Table 6: VPNremote for 4600 Series IP Telephones Specific Customizable System Parameters (continued)

Parameter Name	Default Value	Description and Value Range	Example

NVVPNENCAPS	0	This parameter contains the method of UDP encapsulation.
		Values are:
		0=4500-4500
		1=Disable
		2=2070-500
		4= RFC (3947 and 3948)
		
		Description:
		The type of UDP encapsulation method to use when there is a NAT device between the VPNremote Phone and the security device.
		• Set this parameter to 0 for IKE negotiation to start with source port 2070 and destination port 500. Negotiation switches to port source port 4500 and destination port 4500 if peer supports port floating (Ref RFC 3947,3948). Set this parameter to 1 to disable IKE NAT traversal.
		• Set this parameter to 2to disable port floating during IKE NAT traversal.
		• Set this parameter to 4 for IKE negotiation to start with source port 500 and destination port 500. Negotiation switches to port source port 4500 and destination port 4500 if peer supports port floating (Ref RFC 3947 and 3948).
		Finally IPsec traffic is sent inside UDP packets from and to port 4500 if supported by peer or port 2070<->500 if port floating is not supported, and UDP encapsulation is supported as published in the initial draft versions of RFC 3947 and 3948.
			To set the UDP encapsulation value to 1 when the script file is not downloaded through the VPN tunnel, use the following command:
			`IF $VPNACTIVE SEQ 1 goto skipencaps`
			`SET NVVPNENCAPS 1 # skipencaps`
			.

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